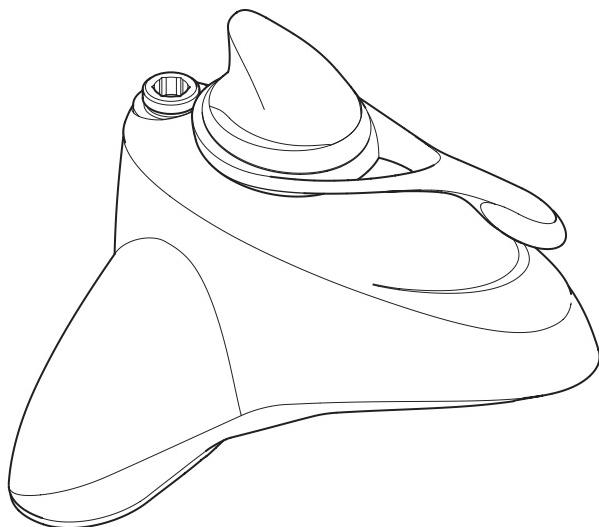


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EXCEL



MIRA EXCEL THERMOSTATIC

BATH AND SHOWER MIXER

Installation & User Guide

These instructions are to be left with the user



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INTRODUCTION

Thank you for purchasing a quality Mira product. To enjoy the full potential of your new product, please take time to read this guide thoroughly, having done so, keep it handy for future reference.

DESCRIPTION

This Mira Excel BSM is a fully thermostatic Bath and Shower mixer, with an integral flow control and divertor. A patented temperature re-setting mechanism automatically reduces the maximum allowable temperature when diverting from bath to shower outlet.

For ease of installation and maintenance this product includes a separate inlet manifold which allows access to the inlet connections, filters, checkvalves and flow regulators. It includes maintenance free cartridges: a thermostatic temperature control cartridge and a ceramic divertor cartridge.

To make sure that the installation complies with Water Supply Regulations (backflow prevention) the correct type of shower fittings must be fitted.

IMPORTANT SAFETY INFORMATION

Warning!

1. Products manufactured by us are safe and without risk provided they are installed, used and maintained in good working order in accordance with our instructions and recommendations.

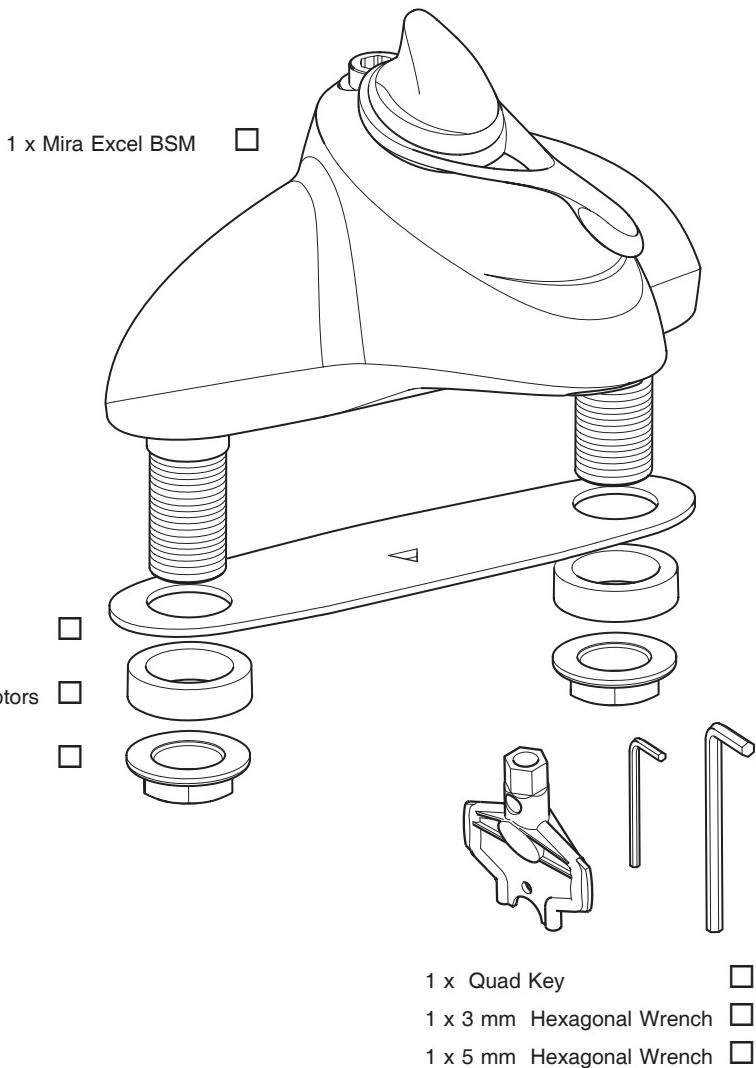
Caution!

1. Read all of these instructions.
2. Retain this guide for later use.
3. Pass on this guide in the event of change of ownership of the installation site.
4. Follow all warnings, cautions and instructions contained in this guide.
5. Anyone who may have difficulty understanding or operating the controls of any shower or bath tap should be attended whilst showering or bathing. Particular consideration should be given to the young, the elderly, the infirm, or anyone inexperienced in the correct operation of the controls.
6. When this product has reached the end of its serviceable life, it should be disposed of in a safe manner, in accordance with current local authority recycling, or waste disposal policy.

If you experience any difficulty with the installation or operation of your new Bath Shower Mixer, please refer to '**Fault Diagnosis**' before contacting Kohler Mira Limited. Our telephone and fax numbers can be found on the back cover of this guide.

PACK CONTENTS CHECKLIST

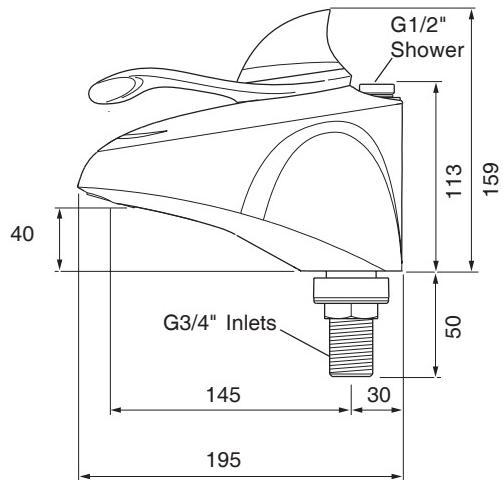
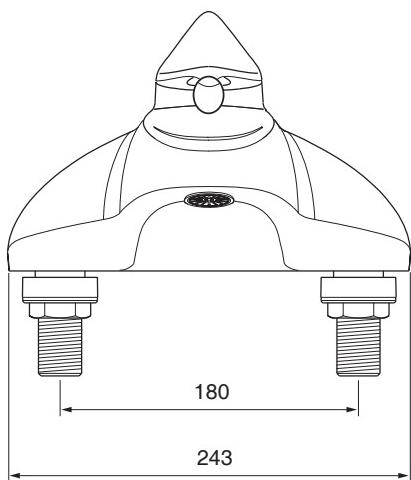
Tick the appropriate boxes to familiarise yourself with the part names and to confirm that the parts are included.



Documentation

- 1 x Installation and User Guide
1 x Customer Support Brochure

DIMENSIONS



NOTE:- NOT TO SCALE - All dimensions are in millimetres

SPECIFICATIONS

Connections

Inlets: 3/4" BSP Male at 180 mm centres.

The connections, when viewed from the front, are: **Hot – left, Cold – right.**

Shower Outlet: 1/2" BSP Male.

Mira Excel BSM is a fully thermostatic bath and shower mixer with an integral flow control and divertor. It is recommended that Mira Logic Shower fittings with a 1.25 m hose are used with this mixer to optimise performance.

Weight

Mira Excel Thermostatic BSM = 6.3 Kg.

Temperature Control

Temperature selection range: full cold to full hot or max temperature limit.

Note! For your safety, the BSM is pre-set to a maximum temperature of 46°C for bath fill. When diverting from bath fill to shower mode the maximum preset temperature will be reduced by approximately 6°C. If you require bath fill at a hotter temperature refer to section: '**Commissioning, Maximum Temperature Setting**'.

Note! An increase in bath fill maximum preset temperature will increase the shower mode maximum preset temperature. We recommend that you do not increase the bath fill temperature above 48°C.

Warning! It is essential to check the maximum temperature during commissioning as the setting will change with different supply conditions.

Thermostatic Temperature Control: 35°C - 49°C

Note! Shut down to seepage is only achieved if the hot supply is 12°C above the blend temperature.

Flow Control

The mixer has an integral flow divertor. No other type of user accessible flow controller should be fitted to the shower outlet. Flow regulators are fitted to the inlets and to the shower outlet to control the flow at high pressures. For pressures below 1.0 bar it is recommended that the flow regulators are removed, refer to section: '**Maintenance, Flow Regulator Removal**'.

Operating Parameters

Inlet Supply Pressure

Maintained Inlet Pressures: 0.2 - 5 bar

Max. Static Pressures: 10 Bar

Note! With low pressure systems (below 1 bar) it may be necessary to remove the flow regulators fitted to the product as supplied, refer to section: '**Maintenance, Flow Regulator Removal**'. Both hot and cold pressures should be nominally balanced within $\pm 10\%$.

Inlet Supply Temperatures

Recommended Hot: 55°C - 65°C

Recommended Cold: 5°C - 20°C

Note! The mixer can operate at temperatures up to 90°C for short periods without damage. However for safety reasons it is recommended that the maximum hot water temperature is limited to 65°C.

INSTALLATION REQUIREMENTS

Read the section '**Important Safety Information**' first.

Installation must be carried out in accordance with these instructions, and must be conducted by designated, qualified and competent personnel.

1. The installation must comply with the "Water Supply Regulations 1999 (Water Fittings)" or any particular regulations and practices, specified by the local water company or water undertakers.
2. Before commencing, make sure that the installation conditions comply with the information given in section: '**Specifications**'.
3. Layout and sizing of pipework **must** be such that when other services are used, pressures at the BSM inlets are maintained approximately equal and **do not** fall below the recommended minimum.
4. **Do not** install the product in a position in which service access is restricted.
5. **Do not** fit any form of flow control in the shower outlet, only Mira recommended fittings should be used.
6. **Do not** use excessive force when making connections.
7. **Do not** install the product in a position where it could become frozen.
8. Supply pipes **must** be flushed to clear debris before connecting the BSM.
9. Conveniently situated isolating valves **must** be fitted for servicing purposes.
10. If the BSM is to be used with a fully modulating multipoint water heater, fully modulating combination boiler, thermal store or unvented system an expansion vessel must be fitted to accommodate the expansion of water in the domestic hot water supply (this may already be part of the system, check the details on the boiler/heater or contact the boiler/heater manufacturer).

Important!

Three flow regulators are supplied fitted to the product. These are required to limit the flow rate to the bath and shower when installed on high pressure systems (> 1 bar). On low pressure systems these may need to be removed to increase the flow (refer to section: '**Maintenance, Flow Regulator Removal**').

Typical Suitable Installations

Key to symbols appearing throughout this guide.

	Float operated valve		Twin impeller inlet pump
	Stop or servicing valve		Tempering valve
	BSM		Mini expansion vessel
	Warning or overflow pipe		Non-return valve
	Drop tight pressure reducing valve (PRV)		

Instantaneous gas-heated supplies (e.g. combination boilers)

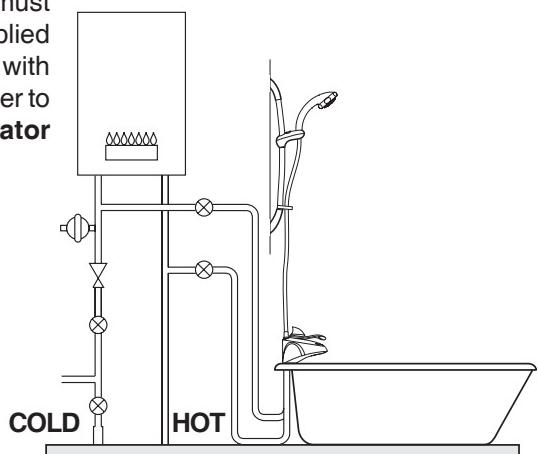
The BSM **MUST** be installed with a multipoint gas water heater or combination boiler of a **fully modulating design** (i.e. where the water draw-off rate indirectly controls the gas flow rate to the burner).

A drop tight pressure reducing valve **MUST** be fitted if the supply pressures exceed 5 bar maintained.

An expansion vessel **MUST** be fitted (and regularly maintained) as shown in the diagram below to ensure that excess pressures do not damage the product. This may already be fitted within the boiler (check with the manufacturer) and is in addition to the normally larger central heating expansion vessel.

The hot supply temperature **MUST** be at least 12°C hotter than the required blend temperature for optimum performance.

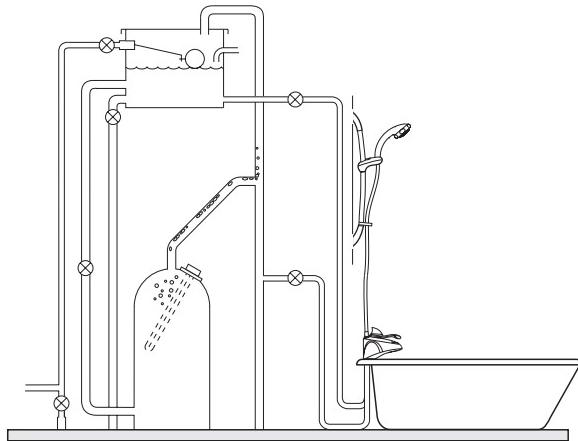
Note! For combination boilers you must remove the green flow regulator supplied installed in the hot inlet and replace it with the white flow regulator (supplied). Refer to section: '**Maintenance, Flow regulator Removal**'.



Gravity fed supplies

The BSM **MUST** be fed from a **cold water storage cistern** and **hot water cylinder** providing nominally equal pressures.

Note! For gravity fed supplies you must remove the hot and cold inlet flow regulators and the outlet flow regulator to make sure that the maximum flow rate is achieved. Refer to section: '**Maintenance, Flow regulator Removal**'.

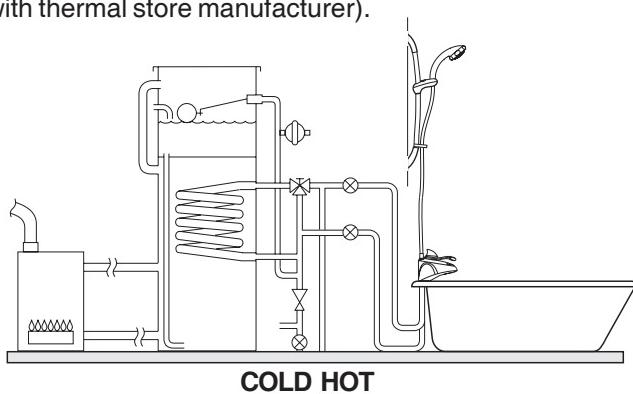


Mains pressurised instantaneous hot water supplies, heated from a thermal store

Packages of this type, fitted with a tempering valve can be used.

A drop tight pressure reducing valve **MUST** be fitted if the supply pressures exceed 5 bar maintained.

An expansion vessel **MUST** be fitted (and regularly maintained) if any form of backflow prevention device is fitted, e.g. non-return valve, PRV. This will ensure that excess expansion or pulse pressures do not damage the product or the plumbing system. The expansion vessel may already be fitted externally or internally within the thermal store (check with thermal store manufacturer).

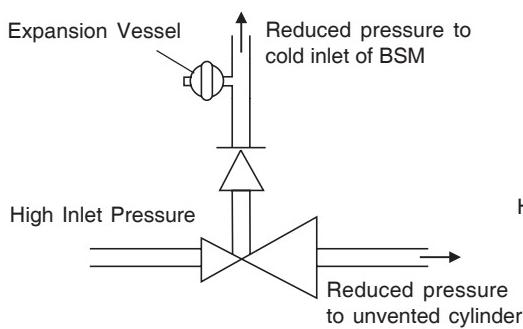
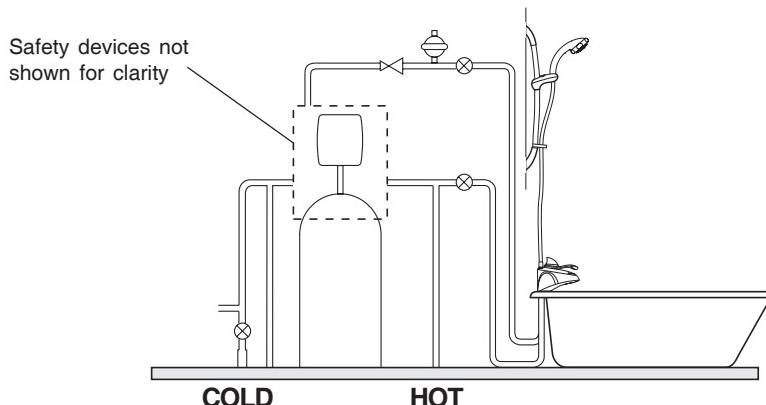


Unvented mains pressure supplies

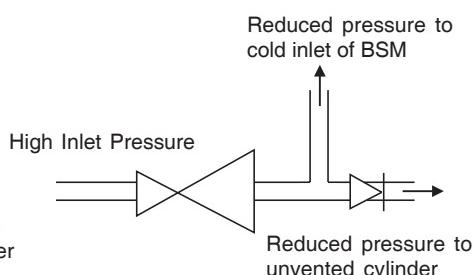
The BSM can be installed with an unvented, stored hot water cylinder. Only a "competent person" as defined by Part G of Schedule 1 of the Building Regulations may fit this type of system.

For packages with no cold water take off after the appliance reducing valve, it will be necessary to fit an additional drop tight pressure reducing valve when the mains pressure is over 5 bar. The drop tight pressure reducing valve must be set at the same value as the unvented package pressure reducing valve.

Note! An expansion vessel **MUST** be fitted (and regularly maintained) if any form of backflow prevention device is fitted, e.g. non-return valve, PRV. This will ensure that excess expansion or pulse pressures do not damage the product or the plumbing system.



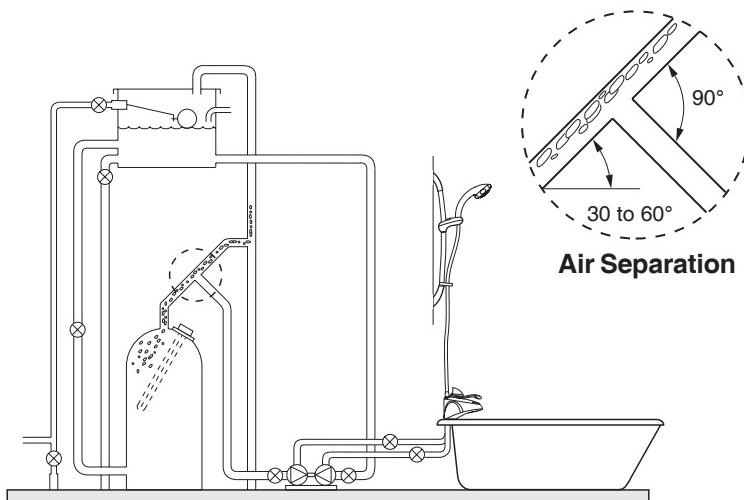
**Combined outlet PRV
with internal non-return valves**
- Expansion vessel required.



Cold takeoff after PRV
- Expansion pressure taken up by
unvented cylinder expansion vessel.

Pumped supplies (inlet pumps)

The BSM can be installed with an inlet pump (twin impeller). The pump **MUST** be located on the floor next to the hot water cylinder. The hot water cylinder/vent pipes must be arranged as shown to achieve air separation.



INSTALLATION

1. The Mira Excel Thermostatic BSM can be installed on most standard baths and deck surfaces (refer to illustration).
2. Fit the bath sealing gasket to the mixer with the arrow pointing forward. Carefully position on the bath (refer to illustration).

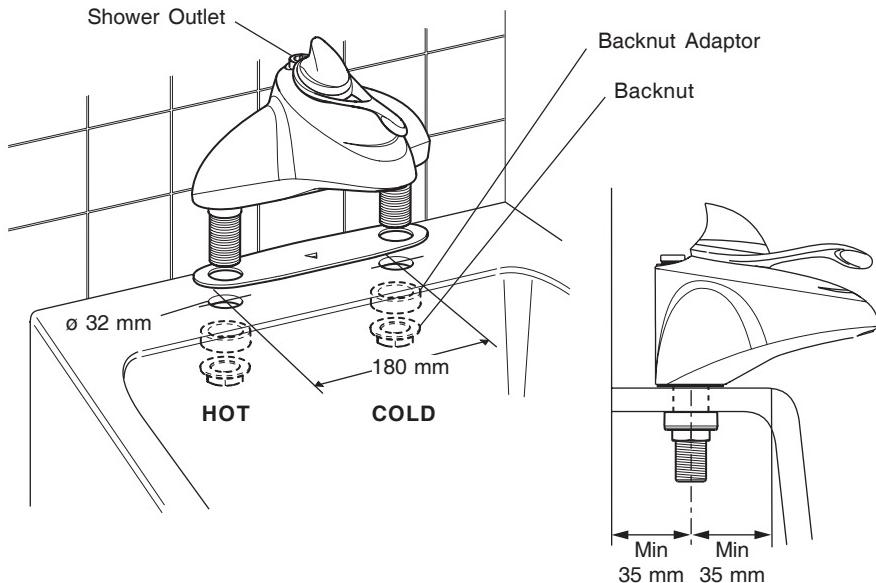
Note! Make sure that the gasket provides an adequate seal. If the BSM overhangs the 'roll' of the bath then silicone sealant must be used.

3. Fit the two backnut adaptors and the two 3/4" BSP backnuts and tighten. Take care to prevent damage to the bath.
4. Thoroughly flush out the incoming hot and cold water supplies before final connection of the Excel BSM.

5. Connect the hot and cold water supplies to the inlets.

Important! The hot water supply **MUST** be connected to the hot inlet. This is stamped **H** on the top of the manifold. Reversed connections could be dangerous to the person using the mixer. The connections, when viewed from the front, are:

Hot – left, Cold – right.



6. **For low pressure systems only**, make sure that you remove the three flow regulators fitted to the hot and cold inlets and to the shower outlet. This will make sure that the highest possible flow rate is achieved. Refer to section: '**Maintenance, Flow regulator Removal**'.
7. **For combination boilers only**, make sure that the green flow regulator supplied installed in the hot inlet is replaced with the white flow regulator (supplied). Refer to section: '**Maintenance, Flow regulator Removal**'.
8. Check the installation for any leaks. Fully open the isolating valves fitted to the supply pipework.
9. Install the shower fittings, refer to the appropriate section in the **Shower Fittings Installation and User Guide**.
10. Connect the shower hose to the shower outlet of the Excel BSM.
11. This completes the installation of the Mira Excel BSM.

Note! Following the installation of your Mira Excel BSM commissioning checks must be carried out, refer to section: '**Commissioning**'

OPERATION

The Mira Excel BSM is fitted with a separate On / Off flow divertor and temperature control handle which operate as follows:-

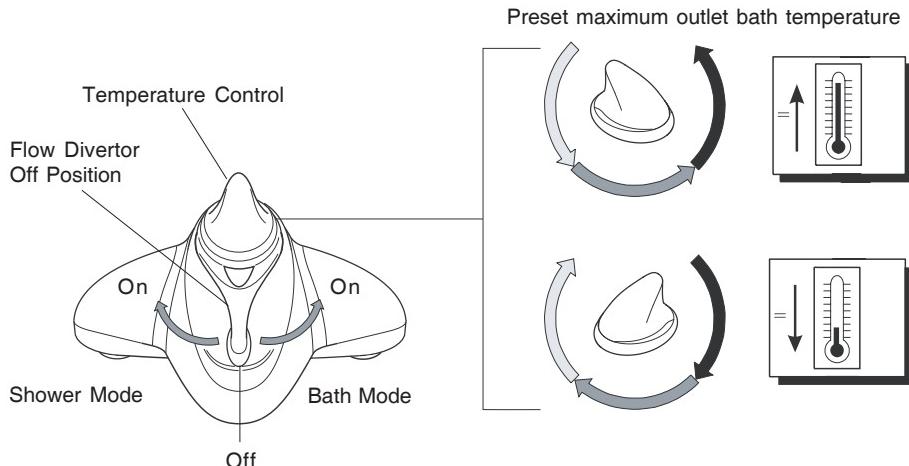
1. On / Off Flow Divertor

From the Off position, anticlockwise movement immediately turns on the flow to bath mode, full clockwise movement diverts the flow to shower mode. When diverting from bath mode to shower mode the maximum preset temperature will be reduced by approximately 6°C. When diverting from shower mode to bath mode the temperature will remain at the set showering temperature until adjusted by the temperature control. The flow rate is determined by the supply pressures at the inlets of the product control, or by the effective output power of the gas heater appliance. Flow rates for gas water heaters and combination boilers can vary typically between 8 l/min (winter) and 15 l/min (summer).

Note! An amount of water may be retained in the bath spout after the flow control has been turned off. This will drain over a short period of time.

2. Temperature Control

In either the shower or bath fill mode adjustment of temperature is achieved by clockwise rotation for cooler and anticlockwise rotation for warmer up to the preset maximum.



COMMISSIONING

Commissioning Checks

After completing the installation the following commissioning checks must be carried out:

Note! Thermostatic mixing valves with wax capsules could lose their responsiveness if not used. Valves which have been in storage, installed but not commissioned, or simply not used for some time should be exercised before setting the maximum temperature or carrying out any tests.

A simple way to provide this exercise is:

- (a) Make sure that the hot and cold water are available at the valve inlets, turn on the flow divertor to bath mode.
- (b) Turn the temperature control rapidly from cold to hot and back to cold several times, pausing at each extreme.

Maximum Temperature

The maximum blend temperature through the bath or shower outlet should be limited to prevent accidental selection of a temperature which may be too hot. All Mira thermostatic mixing valves are fully performance tested individually and the maximum temperature for the Mira Excel BSM is pre-set under ideal installation conditions at the factory to approximately 46°C for bath fill. When diverting from bath mode to shower mode the maximum preset temperature will be reduced by approximately 6°C. Site conditions may dictate that the maximum temperature has to be re-set following installation or servicing.

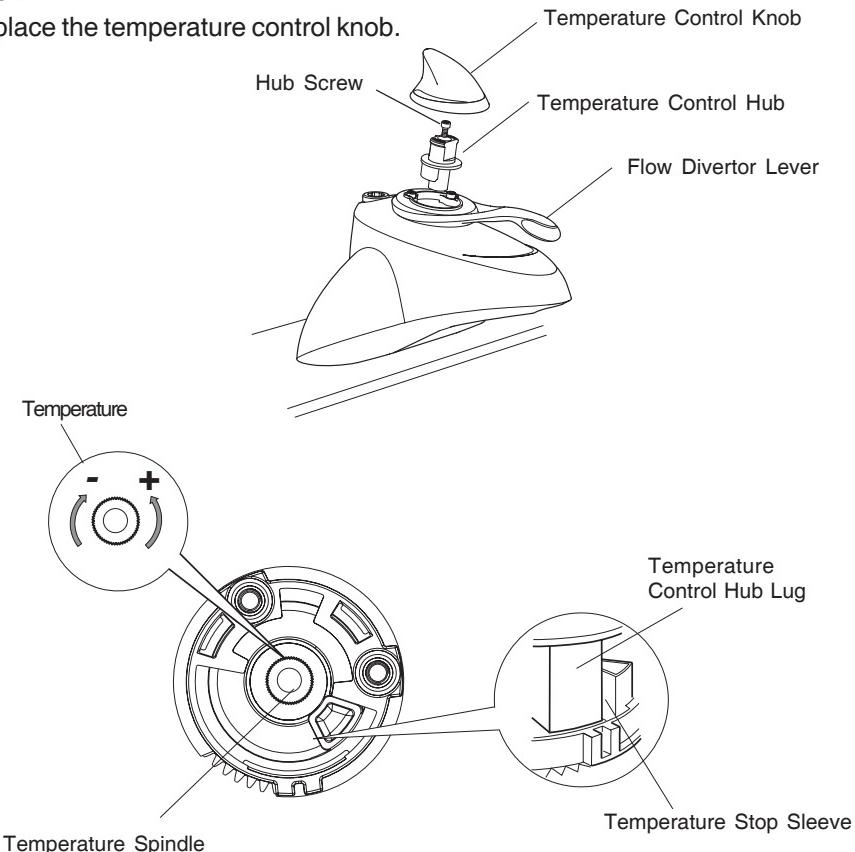
To check the temperature:

1. Turn the flow divertor lever to bath mode and run for several minutes in order to stabilise the temperature. Make sure that the hot and cold water supplies are within Mira recommendations. Refer to section: '**Specifications**'.
2. Turn the temperature control handle to the hot position (fully anticlockwise). To re-set the maximum temperature refer to section: '**Maximum Temperature Setting**'. The actual temperature may vary depending on the supply conditions.
3. Turn the flow divertor lever to shower mode (Check that an adequate spray pattern is delivered from the shower head) and measure the shower temperature. This is automatically set when the flow divertor is turned to shower mode.
4. Turn the flow divertor lever to the OFF position.

Note! Draining of residual water held in the outlet fittings, may continue for a period after the flow is shut off.

Maximum Temperature Setting

1. Pull off the temperature control knob.
2. Remove the hub screw using the 3 mm hexagonal wrench (supplied) and remove the temperature control hub.
3. Rotate the flow divertor lever to bath mode.
4. Rotate the cartridge temperature spindle using the temperature control hub until the desired bath outlet temperature is obtained from the bath spout. (**clockwise = decrease temperature**).
5. Once the desired maximum blend temperature has been achieved (46°C is recommended for bath fill), refit the temperature control hub without disturbing the spindle, positioning the hub such that the lug on the temperature hub is against the left hand side of the temperature stop sleeve (refer to illustration). Check that the blend temperature has not altered, refit and tighten the hub locking screw.
6. Replace the temperature control knob.



Maximum Temperature Setting

FAULT DIAGNOSIS

Read the section: **Important Safety Information** first.

Provided that the BSM has been correctly installed and is operated in accordance with the instructions contained in this guide, difficulties should not arise. If any maintenance is required then it must be carried out by a competent tradesperson for whom the fault diagnosis chart and maintenance instructions are provided. Before replacing any parts make sure that the underlying cause of the malfunction has been identified.

Symptom	Cause/Rectification
1. Only hot or cold water from mixer outlet.	a. Inlet supplies reversed. Make sure that the hot supply is connected to the left, and the cold supply to the right hand inlet when viewed from the front. b. The thermostatic cartridge (1598.022) is fitted incorrectly. Make sure that the hot inlet (marked 'H') is on the left side.
2. Fluctuating or reduced flow.	a. Check that the inlet filters are not blocked. b. Make sure that the minimum flow rate is sufficient for the supply conditions. c. Make sure that the maintained inlet pressures are nominally balanced and sufficient. d. Make sure that the inlet temperature differentials are sufficient. e. Check the thermostatic performance. f. Flow regulators fitted incorrectly. g. Airlock or partial blockage in pipework.
3. No flow from mixer outlet.	a. Make sure that the inlet isolating valves are open. b. Hot or cold supply failure. Make sure that the hot and cold supplies are available to the mixer. c. Refer to symptom 2. above.
4. Blend temperature drift.	a. Make sure that the inlet valves are open. b. Hot supply temperature fluctuation. c. Supply pressures fluctuating. d. Thermal Cartridge defective. e. Inlet Filters Blocked.
5. Maximum blend temperature setting too hot or too cold.	a. Indicates incorrect maximum temperature setting, refer section: ' Commissioning '. b. Refer to symptom 4. above.

Symptom	Cause/Rectification
6. Flow rate too low or too high.	<ul style="list-style-type: none"> a. (Too low) Insufficient supply pressures. b. (Too low) Refer to symptom 2. c. (Too high) Supply pressure too high. d. Flow regulators fitted incorrectly.
7. Dripping from bath or shower outlet.	<ul style="list-style-type: none"> a. Remove the flow divertor cartridge and check the cartridge inlet seal. Replace if damaged. b. If leak persists replace the flow divertor cartridge.
8. Temperature too hot or too cold.	<ul style="list-style-type: none"> a. Refer to symptom 1. b. Refer to symptom 4.

MAINTENANCE

Mira products are precision engineered to provide satisfactory performance provided that they are installed and operated in accordance with the recommendations contained in this guide.

The Mira Excel BSM is designed for the minimum of maintenance in normal use. If a malfunction occurs with either the temperature control cartridge or the flow divertor cartridge then this will necessitate a complete cartridge replacement.

Note! The cartridge's contain no internally serviceable parts.

When installed in very hard water areas (above 200 p.p.m. temporary hardness) your installer may advise the installation of a water treatment device to reduce the effects of limescale formation.

Cleaning

Many household cleaners contain abrasive and chemical substances, and should not be used for cleaning plated or plastic fittings. These finishes should be cleaned with a mild washing up detergent or soap solution, and then wiped dry using a soft cloth.

In-service Tests

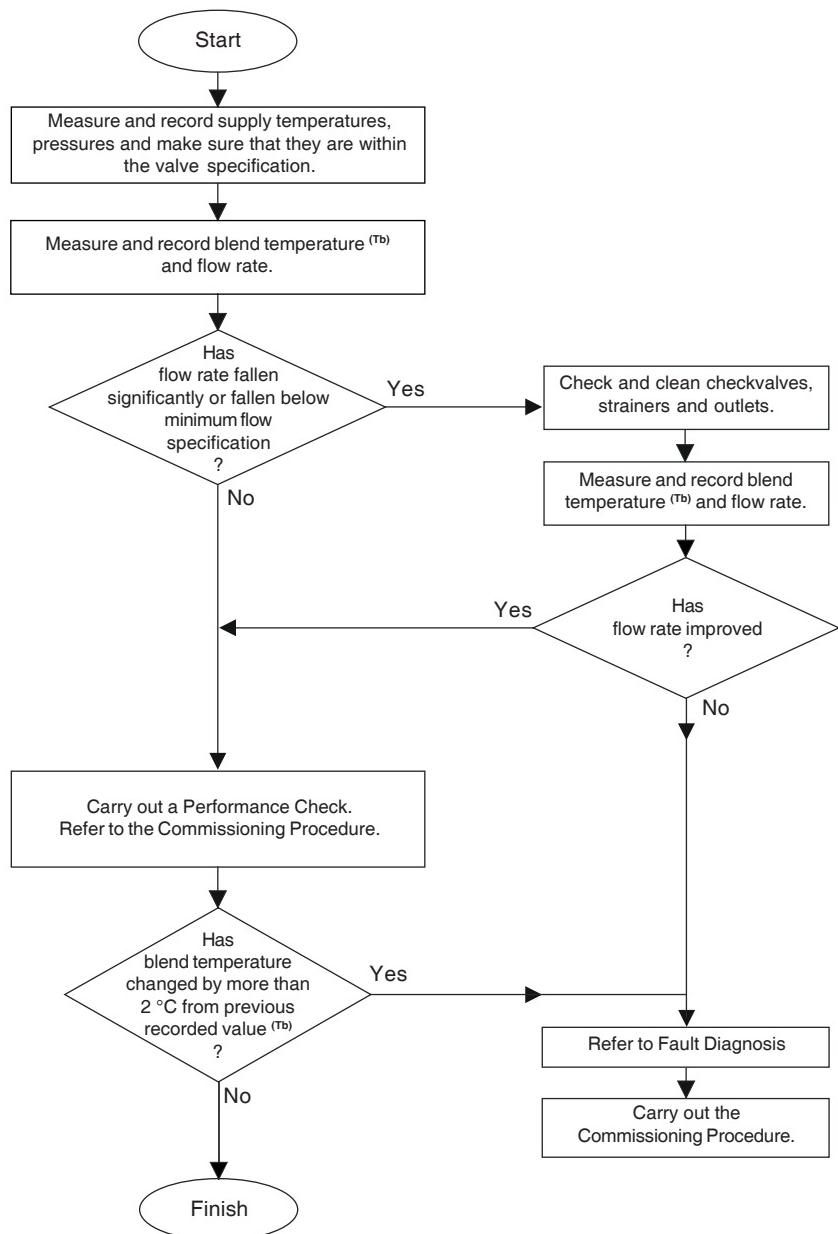
The principal means for determining the continuing satisfactory performance of the mixing valve is the in-service test.

Follow the procedure detailed in the flow diagram “In-service Test Procedure”.

Frequency of In-service Tests

Check for correct blend setting every 6 months.

Follow the procedure detailed in the flow diagram “In-service Test Procedure”, every 12 months.



Note! All measurements and results should be recorded in the Log Book.

Flow diagram In-service Test Procedure

Flow Regulator Removal

Three flow regulators are fitted to the product. The red regulator fitted to the shower outlet on top of the Mira Excel BSM limits the maximum flow rate to the shower fitting. The green regulators are fitted to the hot and cold inlets for high pressure systems. These must be removed if the inlet pressure is below 1 bar.

For combination boilers a fourth (white) flow regulator is supplied with the product to make sure that the boiler can supply the Excel BSM with an adequate supply of hot water. You must replace **only** the green flow regulator supplied installed in the **hot inlet** and replace it with the white flow regulator (supplied).

1. Turn off the hot and cold water supplies.
2. Pull off the temperature control knob.
3. Unscrew the hub screw using the 3 mm hexagonal wrench (supplied) and remove the temperature control hub.
4. Unscrew the 2 flow divertor lever retaining screws using the 3 mm hexagonal wrench (supplied) and remove the flow divertor lever and slip ring.
5. Disconnect the shower hose and remove the shower outlet nipple using the quad key (supplied) or a 12 mm hexagonal wrench.
6. Remove the red shower flow regulator from the shower outlet nipple.

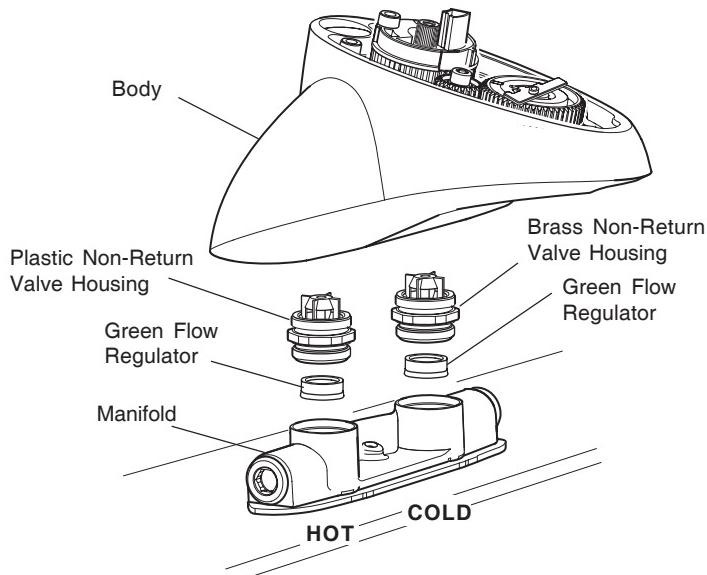
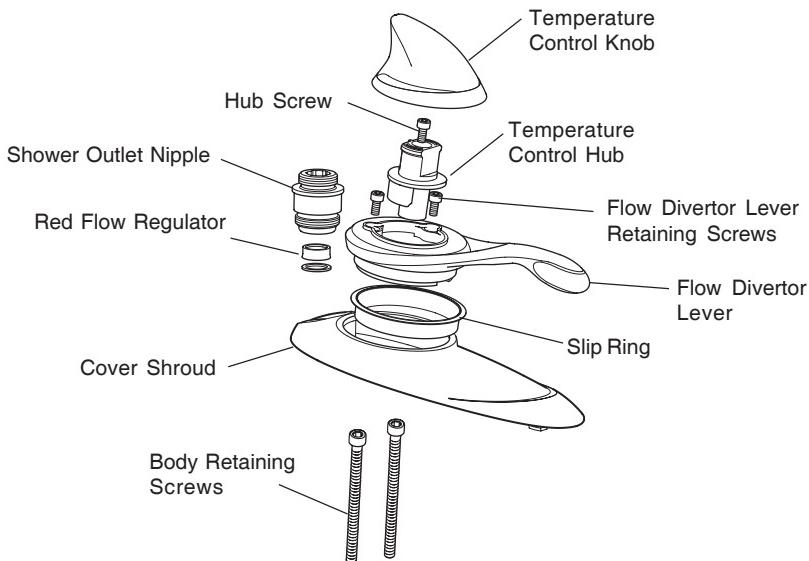
Note! For very low pressure systems (<0.2 bar) a greater shower flow can be obtained by removing the shower non-return valve from the nipple. If this is necessary, remove the retaining circlip (using circlip pliers) and push the non-return valve from the nipple.

7. Carefully push back and lift off the cover shroud and the seal.
8. Unscrew the 2 body retaining screws using the 5 mm hexagonal wrench (supplied) and lift the body from the manifold.
9. Unscrew the hot and cold inlet non-return valve housing from the manifold using a suitable spanner.
10. Remove the 2 green flow regulators.
11. Refit both the non-return valve housings and tighten with a spanner in a clockwise direction.

Note! The plastic housing must be fitted in the hot (left) inlet and the brass housing must be fitted in the cold (right) inlet.

12. Refit the bath and shower mixer on the manifold and refit the 2 body retaining screws.
13. Refit the cover shroud and seal.
Caution! Make sure that the front lip of the cover shroud is located into the slot at the front of the BSM body.
14. Refit the flow divertor lever and slip ring and tighten the 2 flow divertor lever retaining screws.
15. Refit the shower outlet nipple and the shower outlet hose.
16. Turn on the hot and cold water supplies and check for any leaks.

17. Refit the temperature control hub, tighten the hub screw and refit the temperature control knob. Refer to section: '**Maximum Temperature Setting**'.



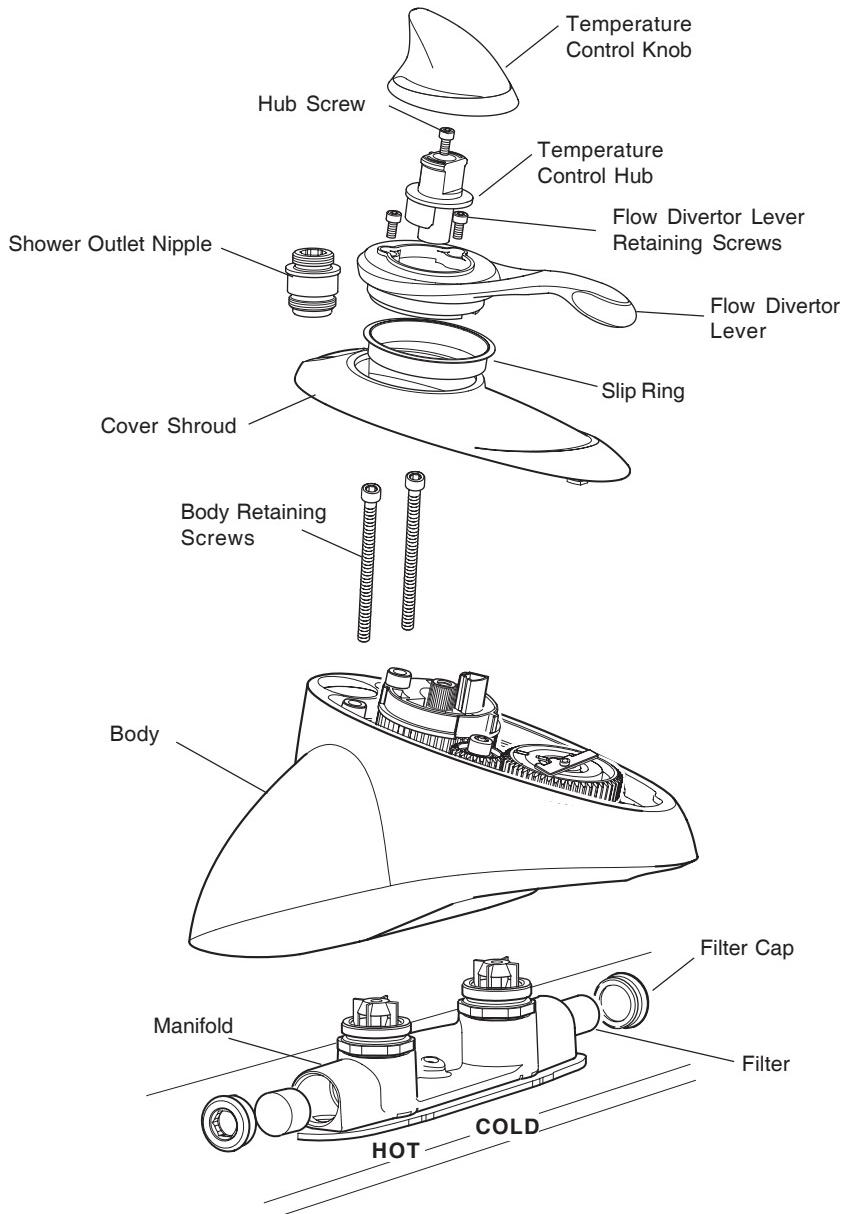
Filter Cleaning/Replacement

Blockage of the inlet filters can lead to poor flow performance and reduced temperature control. It is essential that the inlet filters are periodically cleaned or, if necessary, renewed as part of a preventative maintenance programme.

1. Turn off the hot and cold water supplies.
2. Pull off the temperature control knob.
3. Unscrew the hub screw using the 3 mm hexagonal wrench (supplied) and remove the temperature control hub.
4. Unscrew the 2 flow divertor lever retaining screws using the 3 mm hexagonal wrench (supplied) and remove the flow divertor lever and slip ring.
5. Disconnect the shower hose and remove the shower outlet nipple using the quad key (supplied) or a 12 mm hexagonal wrench.
6. Carefully push back and lift off the cover shroud and the seal.
7. Unscrew the 2 body retaining screws using the 5 mm hexagonal wrench (supplied) and lift the body from the manifold.
8. Unscrew the filter cap from the manifold using a quad key (supplied) or a 12 mm hexagonal wrench and remove the filter.
9. Clean under a jet of water, or renew if damaged (refer to section: '**Spare Parts**').
10. Push the filters into the filter caps and replace. Tighten using the quad key (supplied) or a 12 mm hexagonal wrench.
11. Refit the bath and shower mixer on the manifold and refit the 2 body retaining screws.
12. Refit the cover shroud and seal.

Caution! Make sure that the front lip of the cover shroud is located into the slot at the front of the BSM body.

13. Refit the flow divertor lever and slip ring and tighten the 2 flow divertor lever retaining screws.
14. Refit the shower outlet nipple and the shower outlet hose.
15. Turn on the hot and cold water supplies and check for any leaks.
16. Refit the temperature control hub, tighten the screw and refit the temperature control knob. Refer to section: '**Maximum Temperature Setting**'.



Maintaining the Non-Return Valves

The non-return valves are located inside the inlet manifold and inside the shower outlet nipple.

Note! For the shower **only** perform instructions 2 to 4.

1. Turn off the hot and cold water supplies.
2. Disconnect the shower hose and remove the shower outlet nipple using the quad key (supplied) or a 12 mm hexagonal wrench.
3. Remove the red shower flow regulator.

Remove the circlip and the non-return valve from the nipple.

4. Rinse the non-return valve and clean out any debris, or renew if necessary (refer to section: '**Spare Parts**').

Note! For the shower **only** go to instructions 16 and 17.

5. Pull off the temperature control knob.
6. Unscrew the hub screw using the 3 mm hexagonal wrench (supplied) and remove the temperature control hub.
7. Unscrew the 2 flow divertor lever retaining screws using the 3 mm hexagonal wrench (supplied) and remove the flow divertor lever and slip ring.
8. Carefully push back and lift off the cover shroud and the seal.
9. Unscrew the 2 body retaining screws using the 5 mm hexagonal wrench (supplied) and lift the body from the manifold.
10. Unscrew the hot and cold inlet non-return valve housings from the manifold using a suitable spanner.

11. Remove the 2 green flow regulators.

12. Rinse the non-return valves and clean out any debris, or renew if necessary (refer to section: '**Spare Parts**').

13. Refit the 2 green flow regulators into the non-return valve housings. Refit the non-return valve housings into the manifold and tighten with a spanner in a clockwise direction.

Note! The plastic housing must be fitted in the hot (left) inlet and the brass housing must be fitted in the cold (right) inlet.

14. Refit the bath and shower mixer on the manifold and refit the 2 body retaining screws.

Caution! Make sure that the front lip of the cover shroud is located into the slot at the front of the BSM body.

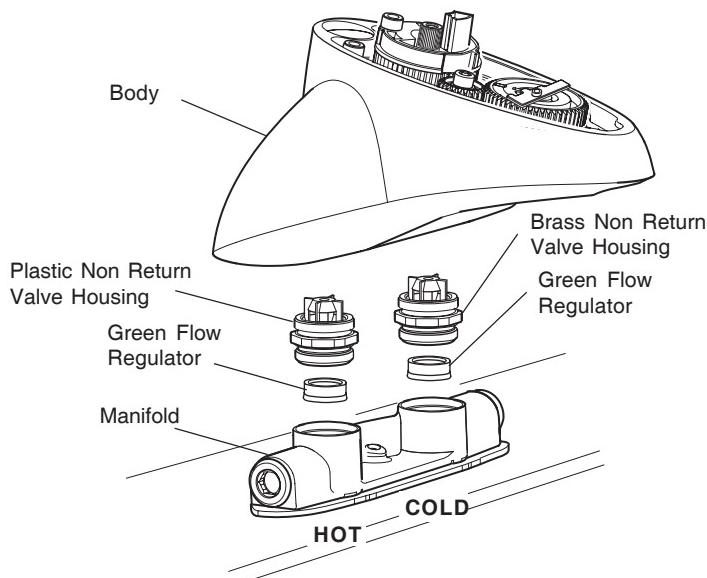
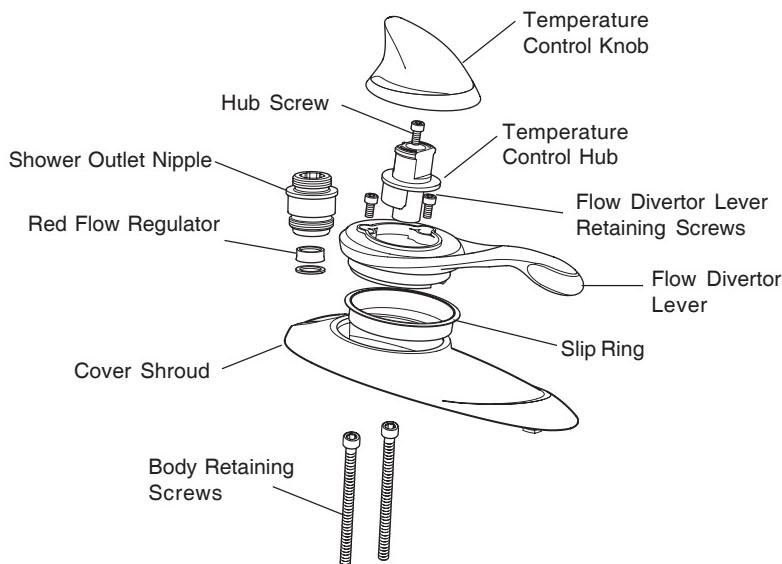
15. Refit the flow divertor lever and slip ring and tighten the 2 flow divertor lever retaining screws.

16. Refit the flow regulator into the shower outlet nipple.

17. Refit the shower outlet nipple and the shower outlet hose.

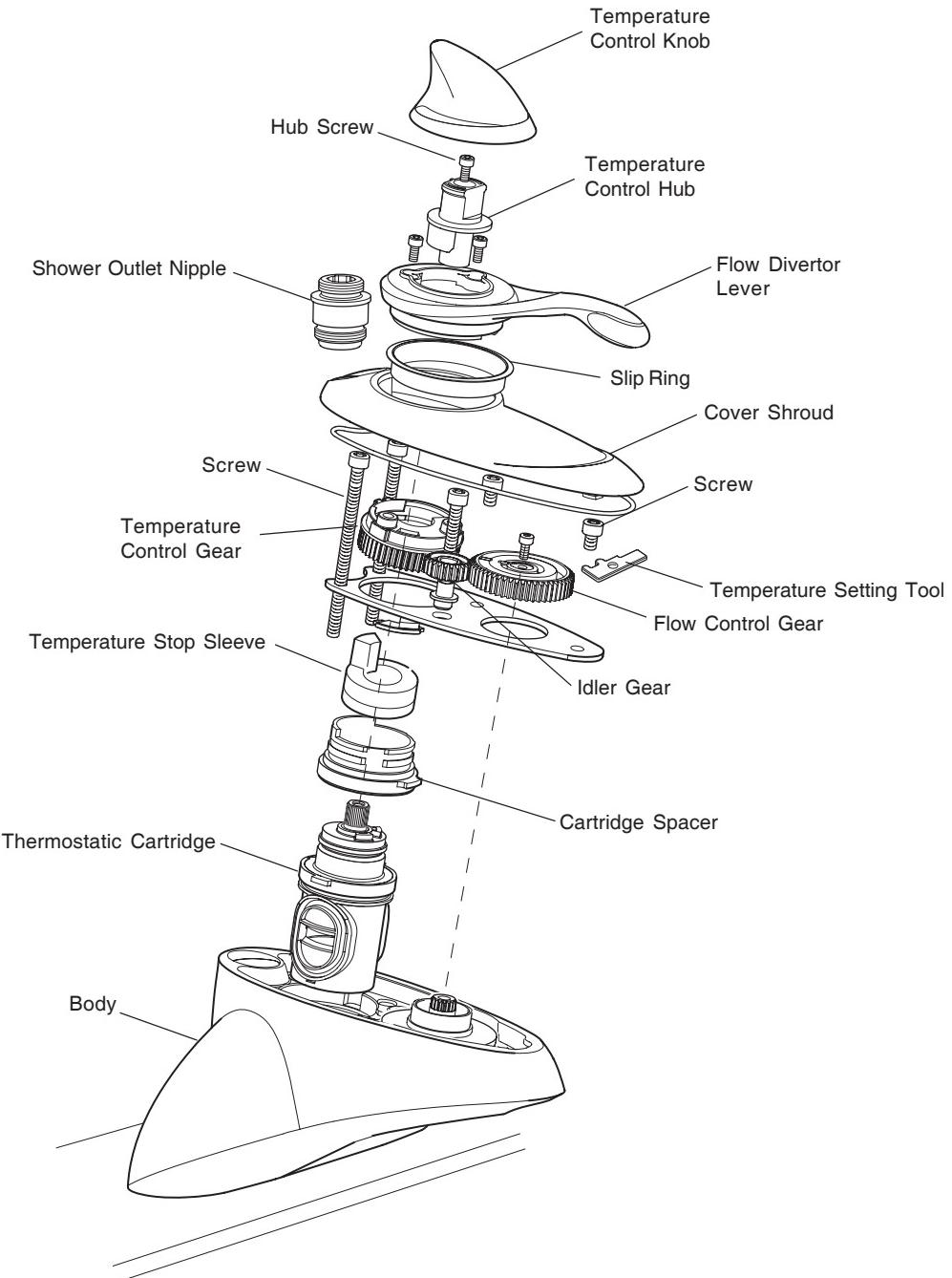
18. Turn on the hot and cold water supplies and check for any leaks.

19. Refit the temperature control hub, tighten the hub screw and refit the temperature control knob. Refer to section: '**Maximum Temperature Setting**'.



Removing the Thermostatic Cartridge

- 1.** Turn off the hot and cold water supplies.
- 2.** Pull off the temperature control knob.
- 3.** Unscrew the hub screw using the 3 mm hexagonal wrench (supplied) and remove the temperature control hub.
- 4.** Unscrew the 2 flow divertor lever retaining screws using the 3 mm hexagonal wrench (supplied) and remove the flow divertor lever and slip ring.
- 5.** Disconnect the shower hose and remove the shower outlet nipple using the quad key (supplied) or a 12 mm hexagonal wrench.
- 6.** Carefully push back and lift off the cover shroud and the seal.
- 7.** Unscrew the flow control gear securing screw using a 3 mm hexagonal wrench (supplied) and remove the flow control gear and the red temperature setting tool.
- 8.** Turn the temperature control gear through 180° clockwise and lift off.
- 9.** Unscrew the idler gear securing screw using a 5 mm hexagonal wrench (supplied) and remove the idler gear and bush.
- 10.** Remove the 4 clamp plate screws using a 5 mm hexagonal key (supplied) and remove the clamp plate.
- 11.** Remove the temperature stop sleeve and cartridge spacer.
- 12.** Refit and secure the temperature control hub to assist in the removal of the thermostatic cartridge.
- 13.** Pull out the thermostatic cartridge.
- 14.** Remove the temperature control hub from the cartridge.



Cleaning and Re-assembly of the Thermostatic Cartridge

1. The interior surface of the Bath and Shower Mixer body must be clean before refitting the cartridge. If scale or deposits are present, clean using a mild proprietary inhibited scale solvent, e.g. domestic kettle descaler. After descaling, rinse valve interior thoroughly in clean water before refitting the cartridge.

Note! The body interior must be cleaned carefully and not damaged in any way. Do not use any abrasive material.

2. Cartridges may only be cleaned by flushing thoroughly under a jet of water to remove lodged particles.

Do not descale. Cartridges are not serviceable, and must not be dismantled. If the cartridge is faulty or damaged a new one should be fitted (refer to section: 'Spare Parts').

3. Examine all accessible seals for signs of deformation or damage, and renew as necessary, taking care not to damage seal grooves.

4. Make sure that the insulation channel cap is aligned with the hot inlet, and the face is below the surface of the cartridge sealing bore.

Note! Make sure that the orientation is correct, as illustrated below.

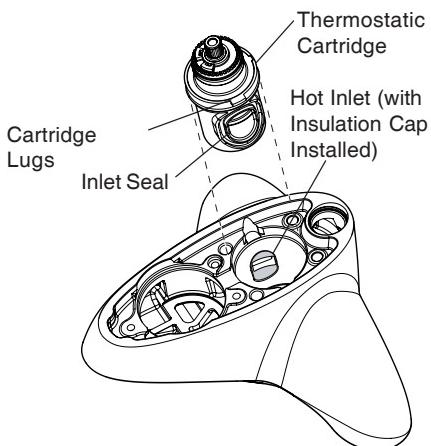
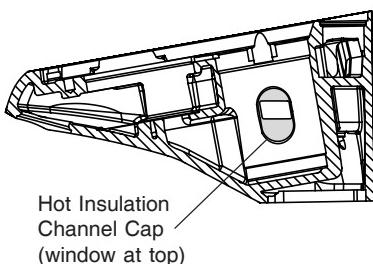
5. Lightly coat all seals with a **silicone-only based lubricant** to assist reassembling.

6. Identify which is the hot inlet to the body (left hand side when viewed from the front) and align the cartridge accordingly (stamped 'H' on the cartridge lug). Carefully push the cartridge back into the body, checking that the 2 cartridge inlet seals and the hot insulation channel cap remain in place and locate the cartridge lugs into the appropriate body slots.

Note! The cartridge is **not** reversible.

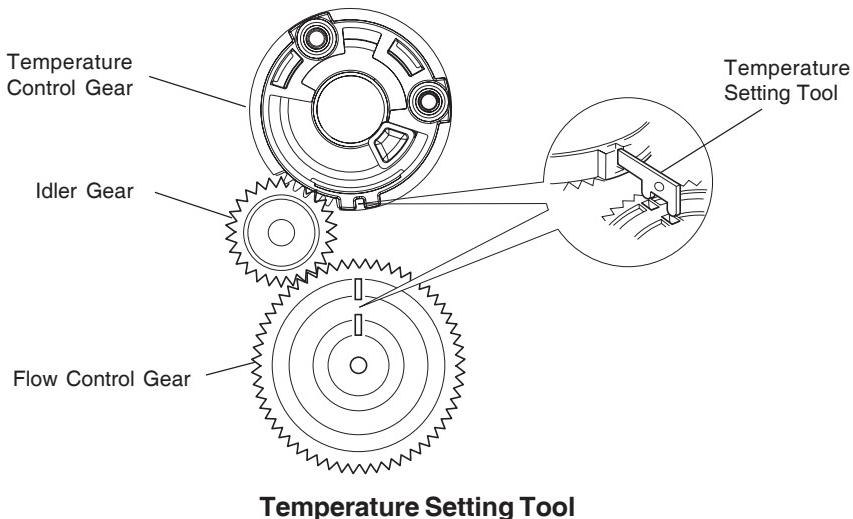
7. Refit the cartridge spacer and temperature stop sleeve with the upstand to the back of the product.

8. Refit the clamp plate and idler gear bush and tighten the 4 clamp plate screws.

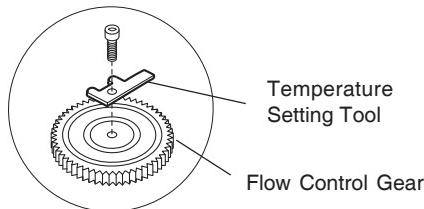


Reassembly of the Thermostatic Cartridge

9. Line up the temperature control gear with the cartridge spacer, push on and rotate anti-clockwise through 180°.
10. Refit the flow control gear and line up with temperature control gear using the temperature setting tool.
11. Refit the idler gear and tighten the screw.
Caution! Do not overtighten the screw as damage may occur causing the idler gear to jam on the bush.



12. Place the temperature setting tool over the flow control gear and tighten the screw.
13. Refit the cover shroud and seal.
Caution! Make sure that the front lip of the cover shroud is located into the slot at the front of the BSM body.
14. Refit the flow divertor lever and slip ring and tighten the 2 flow divertor lever retaining screws.
15. Refit the outlet nipple and the shower outlet hose.
16. Turn on the hot and cold water supplies and check for any leaks.
17. Set the Maximum Temperature. Refer to section: '**Maximum Temperature Setting**'.

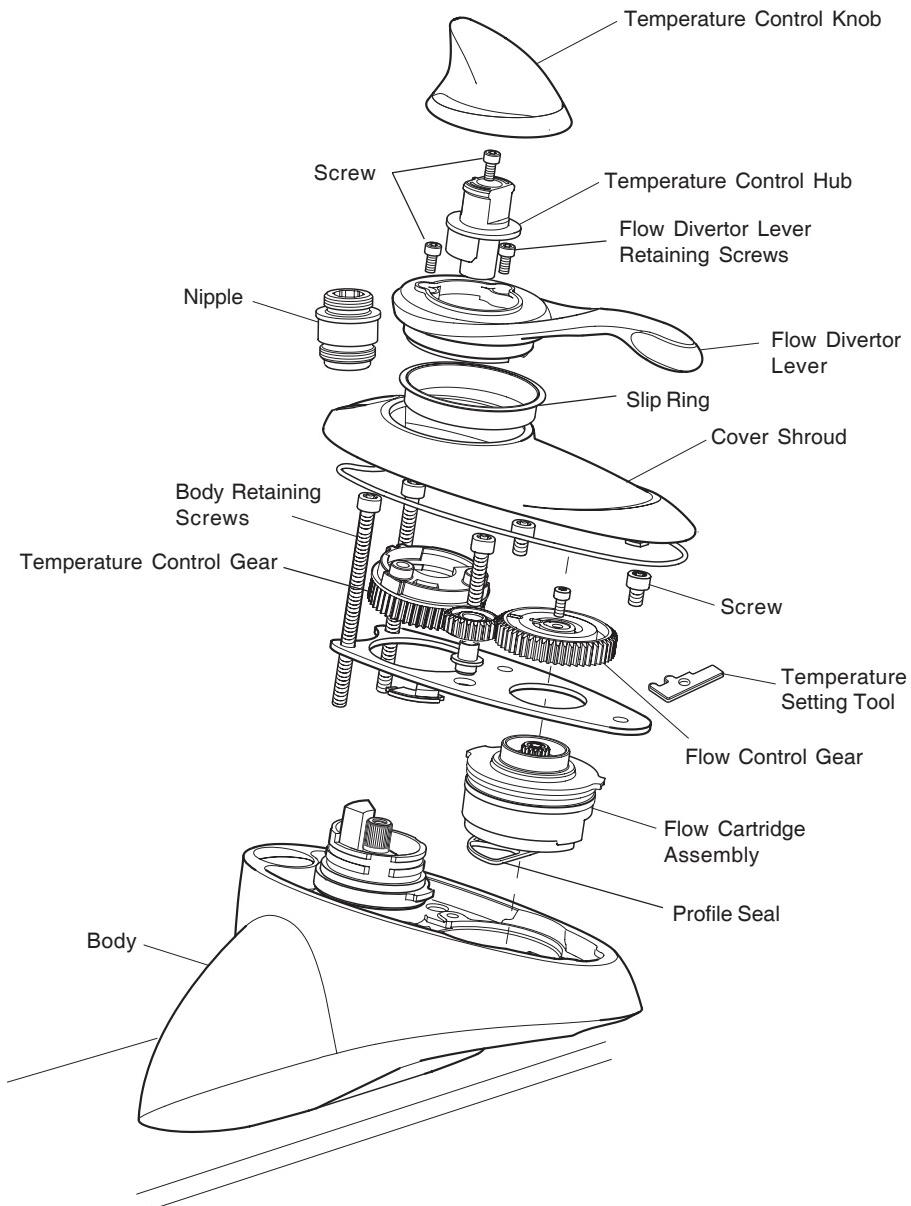


Temperature Setting Tool

Replacement of the Flow Cartridge

1. Turn off the hot and cold water supplies.
2. Pull off the temperature control knob.
3. Unscrew the hub screw using the 3 mm hexagonal wrench (supplied) and remove the temperature control hub.
4. Unscrew the 2 flow divertor lever retaining screws using the 3 mm hexagonal wrench (supplied) and remove the flow divertor lever and slip ring.
5. Disconnect the shower hose and remove the shower outlet nipple using the quad key (supplied) or a 12 mm hexagonal wrench.
6. Carefully push back and lift off the cover shroud and the seal.
7. Unscrew the flow control gear securing screw using a 3 mm hexagonal wrench (supplied) and remove the flow control gear and the red temperature setting tool.
8. Turn the temperature control gear through 180° clockwise and lift off.
9. Unscrew the idler gear securing screw using a 5 mm hexagonal wrench (supplied) and remove the idler gear and bush.
10. Remove the 4 clamp plate screws using a 5 mm hexagonal key (supplied) and remove the clamp plate.
11. Refit and secure the flow control gear upside down to assist removal.
12. Pull out the flow cartridge.
13. Remove the flow control gear from the cartridge and discard the cartridge.
14. Fit the new flow cartridge and profile seal.
Note! The large tab must be towards the back of the BSM body.
15. Refit the clamp plate and idler gear bush and tighten the 4 clamp plate screws.
16. Line up the temperature control gear with the cartridge spacer and rotate anti-clockwise through 180° (refer to illustrations '**Temperature Setting Tool**' in section: '**Cleaning and Re-assembly of the Thermostatic Cartridge**').
17. Refit the flow control gear and line up with temperature control gear using the temperature setting tool.
18. Refit the idler gear and tighten the screw.
Caution! Do not overtighten the screw as damage may occur causing the idler gear to jam on the bush.
19. Place the temperature setting tool over the flow control gear and tighten the screw. (refer to illustrations '**Temperature Setting Tool**' in section: '**Cleaning and Re-assembly of the Thermostatic Cartridge**').
20. Refit the cover shroud and seal.
Caution! Make sure that the front lip of the cover shroud is located into the slot at the front of the BSM body.
21. Refit the flow divertor lever and slip ring and tighten the 2 flow divertor lever retaining screws.
22. Refit the outlet nipple and the shower outlet hose.

23. Turn on the hot and cold water supplies and check for any leaks.
24. Set the Maximum Temperature. Refer to section: '**Maximum Temperature Setting**'.



SPARES

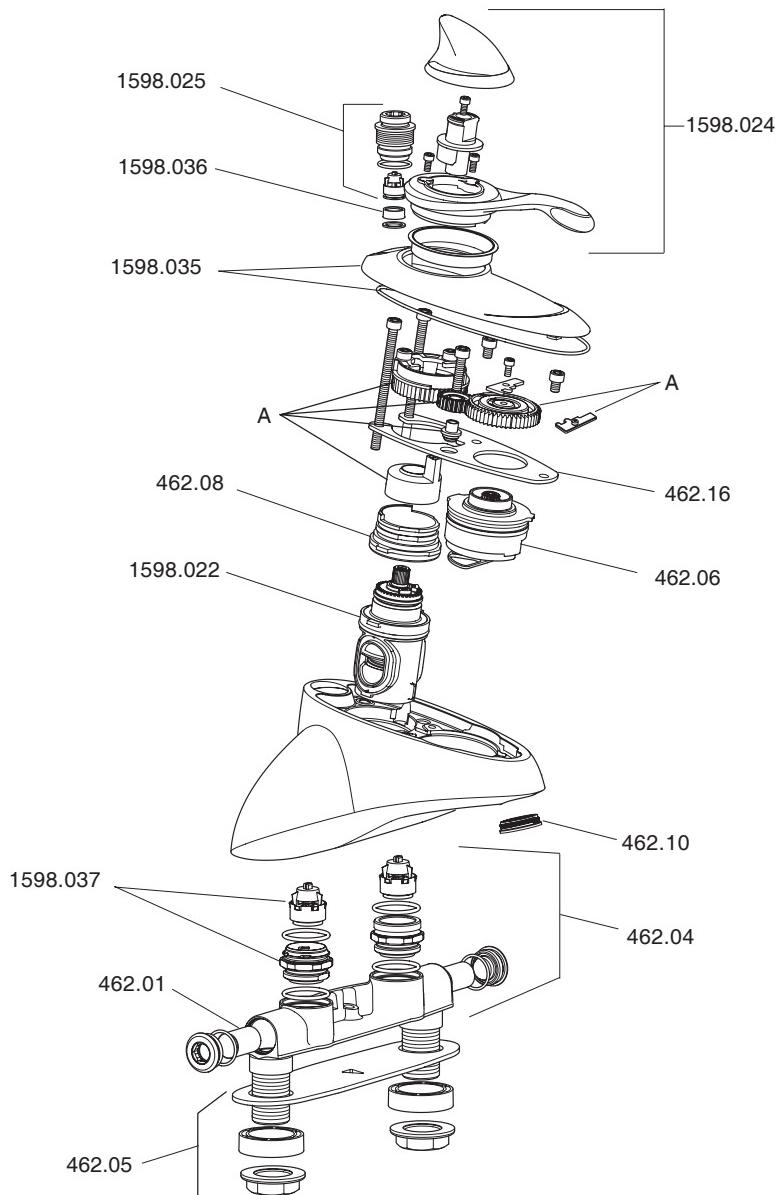
462.01	Filter Pack (2)
462.04	Manifold Assembly
462.05	Nuts and Gasket
462.06	Flow Cartridge Assembly
462.08	Cartridge Spacer
462.10	Flow Straightener
462.14	Screw Pack (Not Illustrated)
462.15	Seal Pack (Not Illustrated)
462.16	Clamp Plate
1598.022	Thermostatic Cartridge
1598.023	Temperature Adjustment Pack (items shown as A)
1598.024	Handle Pack
1598.025	Shower Nipple Assembly
1598.035	Cover Shroud Pack
1598.036	Flow Regulator Kit
1598.037	Check Valve Assembly

ACCESSORIES

Available as an optional accessory from your local Mira Stockist

1598.009 3/4" Isolating Flexible Inlet Hose, 500 mm (2)

Spare Parts Diagram



CUSTOMER SERVICE

Guarantee of Quality

Mira Showers guarantee your product against any defect in materials or workmanship for the period shown in the Guarantee Registration Document included with your shower.

Alternatively, to confirm the applicable guarantee period please contact Customer Services.

To validate the guarantee, please return your completed registration card.

Within the guarantee period we will resolve defects, free of charge, by repairing or replacing parts or modules as we may choose.

To be free of charge, service work must only be undertaken by Mira Showers or our approved agents in Northern Ireland and Republic of Ireland.

Service under this guarantee does not affect the expiry date. The guarantee on any exchanged parts or product ends when the normal product guarantee period expires.

Not covered by this guarantee:

Damage or defects arising from incorrect installation, improper use or lack of maintenance, including build-up of limescale.

Damage or defects if the product is taken apart, repaired or modified by any person not authorised by Mira Showers or our approved agents.

This guarantee is in addition to your statutory and other legal rights.

Before using your shower

Please take the time to read and understand the operating and safety instructions detailed in this manual.

What to do if something goes wrong

If when you first use your shower it doesn't function correctly, first contact your installer to check that installation and commissioning are satisfactory and in accordance with the instructions in this manual. We are on hand to offer you or your installer any advice you may need.

Should this not resolve the difficulty, simply contact our Customer Services who will give every assistance, and if necessary arrange for our service engineer to visit.

If later the performance of your shower declines, consult this manual to see whether simple home maintenance is required. Please call our Customer Services to talk the difficulty through, request service under guarantee if applicable, or take advantage of our comprehensive After-Sales service.

As part of our quality and training programme calls may be recorded or monitored.

Our Customer Services Team is comprehensively trained to provide every assistance you may need: help and advice, spare parts or a service visit.

Spare Parts

We maintain an extensive stock of spares, and aim to have functional parts available for ten years from the date of final manufacture of the product.

Spares can be purchased from approved stockists or merchants (locations on request) or direct from Customer Services.

Spares direct will normally be despatched within two working days. Payment can be made by Visa or MasterCard at the time of ordering. Should payment by cheque be preferred a pro-forma invoice will be sent.

Note! In the interests of safety, spares requiring exposure to mains voltages can only be sent to competent persons.

Service

Our Service Force is available to provide a quality service at a reasonable cost. You will have the assurance of a Mira trained engineer/agent, genuine Mira spares, and a 12 month guarantee on the repair.

Payment should be made directly to the Service Engineer/Agent, using Visa, MasterCard or a cheque supported by a banker's card.

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8:30 am to 5:00 pm Working days (4:30 pm Friday)

8:30 am to 12:30 pm Saturday

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GL52 5EP

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Wm H Leech & Son Ltd

Telephone: 028 9044 9257 – Mon to Fri 9 am-5pm

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